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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,420	08/14/2001	Mao-Jen Chen	BHT-3199-7	7246

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EXAMINER

HASHEM, LISA

ART UNIT	PAPER NUMBER
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2645

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/928,420

Applicant(s)

CHEN, MAO-JEN

Examiner

Lisa Hashem

Art Unit

2645

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### FINAL DETAILED ACTION

1. Examiner acknowledges the cancellation of claim 1 as noted in the Amendment filed on August 6, 2004.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,940,750 by Wang in view of U.S. Patent No. 6,510,314 by Kuo.

Regarding claim 2, Wang discloses a method of using a self-oscillating mixer made from a MESFET with a dielectric resonator for providing feedback as a self-oscillating down converter of a satellite down converter (see Abstract), which comprises the steps of: a) providing a circuit having at least a receiver (Figure 2, 32A) and an output port (column 3, lines 36-45); b) inserting the self-oscillating mixer, a low-noise amplifier, and an intermediate frequency amplifier between the at least one receiver and the output port (see Figure 2); c) positioning the self-oscillating mixer (Figure 2, 36) between the low-noise amplifier (Figure 2: 32, 34) and the intermediate frequency amplifier (Figure 2, 38); and d) utilizing the self-oscillating mixer as a local oscillator and a mixer (see Figure 2; column 3, line 25 – 60). Wherein, other types of transistors, besides the MESFET, can be employed as a self-oscillating mixer, as long as such transistors are capable of providing stable self-oscillation so as to be able to function as both an oscillator and a mixer (column 7, line 66 – column 8, line 7).

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In Figure 5B, the IF amplifier (Figure 5B: 115) includes a NPN bipolar transistor (Figure 5B, Q4). A PNP bipolar transistor (Figure 5B, Q3) is used to bias transistor (Figure 5B, 112) that is included in the self-oscillating mixer (Figure 5B, 110; column 4, line 59 – column 5, line 59).

Wang does not disclose using a bipolar junction transistor as a self-oscillating down converter, such that the bipolar junction transistor serves as a local oscillator and a mixer.

Kuo discloses a method of using bipolar junction transistors in a mixer circuit that convert between radio frequency (RF) signals and intermediate frequency (IF) signals in wireless communications devices (column 1, lines 7-11; see Figure 2). The method comprises the steps of: a) providing a circuit having at least one receiver (Figure 2, 20; RF input) and an output port (Figure 2, 66; IF output); b) inserting the bipolar junction transistor (Figure 2, 16a-16d) and an intermediate frequency amplifier or operational amplifier (Figure 2, 60) between the at least one receiver and the output port; c) positioning the bipolar junction transistor between the RF input and the intermediate frequency amplifier; and d) inherently utilizing the bipolar junction transistor as a local oscillator (column 5, lines 2-39) and a mixer (column 5, line 40 – column 6, line 18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Wang to include a method for using a bipolar junction transistor as taught by Kuo to serve as a local oscillator and a mixer. One of ordinary skill in the art would have been lead to make such a modification since a bipolar junction transistor can replace a MESFET in a self-oscillating mixer to facilitate local oscillation and mixing. This method simplifies the circuit and reduces manufacturing costs.

***Response to Amendment***

4. In response to the remarks (pages 3-6), of the Amendment filed on August 6, 2004, Applicant argues that the teachings of Wang in view of Kuo fail to teach “positioning the bipolar junction transistor between the low-noise amplifier and the intermediate frequency amplifier” and “utilizing the bipolar junction transistor as a local oscillator and a mixer”. The examiner disagrees with Applicant.

Wang discloses a self-oscillating mixer (Figure 2, 36) that is utilized as a self-oscillating down converter and positioned between a low-noise amplifier (Figure 2: 32, 34) and an intermediate frequency amplifier (Figure 2, 38) as noted in claim 2 above. Wang discloses that a MESFET transistor is employed to function as both an oscillator and a mixer (column 3, line 61 – column 4, line 17). However, Wang also discloses that other types of transistor can be employed as well as long as such transistors are capable of providing stable self-oscillation so as to be able to function as both an oscillator and a mixer (column 7, line 66 – column 8, line 7). This implies that a bipolar junction transistor can be used as a local oscillator and a mixer. Thus, the self-oscillating mixer disclosed in Wang can include a bipolar junction transistor.

Kuo discloses a double balanced mixer (Figure 2, 70) that comprises: a circuit having at least one receiver (Figure 2, 20; RF input) and an output port (Figure 2, 66; IF output); inserting the bipolar junction transistor (Figure 2, 16a-16d) and an intermediate frequency amplifier or operational amplifier (Figure 2, 60) between the at least one receiver and the output port; positioning the bipolar junction transistor between the RF input and the intermediate frequency amplifier; and inherently utilizing the bipolar junction transistor as a local oscillator (column 5, lines 2-39) and a mixer (column 5, line 40 – column 6, line 18). Kuo clearly shows how a

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bipolar junction transistor can be utilized in a mixer circuit and serve as a local oscillator and a mixer.

In pages 4-6, Applicant argues that, "...It is a basic principle of U.S. patent law that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of Applicant's disclosure to create a hypothetical combination which allegedly renders a claim obvious, unless there is some direction in the selected prior art patents to combine the selected teachings in a manner so as to negate the patentability of the claimed subject matter...". Some case laws are also cited.

According to the 103 rejection above, all claimed features are met by Wang except that Wang discloses a MESFET transistor instead of a bipolar junction transistor utilized as a local oscillator and a mixer. The Examiner points out that "...there is some direction in the selected prior art patents to combine...", such as column 7, line 66 – column 8, line 7 in Wang and column 5, line 2 – column 6, line 18 in Kuo.

In conclusion, the elements of claim 2 of the claimed invention are well met by the cited references above. The feature of the bipolar junction transistor is addressed in the combination of Wang and Kuo. Please see the rejection and response above.

5. Applicant's arguments with respect to claim 2 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

7. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**Or faxed to:**

(703) 872-9314 (for formal communications intended for entry)

**Or call:**

(703) 306-0377 (for customer service assistance)

Hand-delivered responses should be brought to: Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Hashem whose telephone number is (703) 305-4302. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (703) 305-4895. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

LH

lh

November 18, 2004

  
FAN TSANG  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600